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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,616	05/25/2005	John Gordon Rushbrooke	920602-97103	2226

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CHICAGO, IL 60690-2786

EXAMINER
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MIDKIFF, ANASTASIA

ART UNIT	PAPER NUMBER
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2882

NOTIFICATION DATE	DELIVERY MODE
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04/18/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent-ch@btlaw.com

### Office Action Summary

**Application No.**

10/501,616

**Applicant(s)**

RUSHBROOKE ET AL.

**Examiner**

ANASTASIA MIDKIFF

**Art Unit**

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 67, 68, 73, 76, 79, 81, 82, 93, 96 and 112 is/are pending in the application.
- 4a) Of the above claim(s) 112 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 93 and 96 is/are rejected.
- 7) ☒ Claim(s) 67, 68, 73, 76, 79, 81 and 82 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Newly submitted claim 112 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The invention of Claim 112 is directed towards a method of operating a material discrimination system. This invention is distinct from the x-ray detector and the method of manufacturing of said x-ray detector of the pending claims, and the discrimination system of canceled claim 97, as the operating method of Claim 112 does not require the particulars of the detector, its method of manufacture, or the previously claimed material discrimination system, and can be performed using a materially different detector or system such as those relying on ionization detection of x-rays.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 112 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Objections***

Claims 67, 68, 73, 76, 79, 81, and 82 are objected to because of the following informalities:

In Claim 67, at Line 5, insert the term --a-- between "crystal," and "low-Z converter" for grammatical accuracy.

In Claim 76, at Line 2, replace "where" with --wherein-- for grammatical accuracy.

Claims 68, 73, 79, 81, and 82 are objected to based upon their dependency.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 93 and 96 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for at most only those methods known to the inventor for cutting a front and rear crystal from the same ingot of material, does not reasonably provide enablement for all conceivable methods of cutting said crystals. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. (See MPEP 2164.08(a).)

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 93 is rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent to Moisan et al. (US 6,087,663).

With respect to Claim 93, Moisan et al. teaches a method of manufacturing a detector using high energy for x-ray inspection (Column 6, Lines 34-59) using high energy x-rays, i.e. gamma rays (Column 7, Lines 42-50), including:

- separate front and rear scintillation crystals (4, Figure 1a; see Column 8, Lines 50-52);
- a low-z converter (7), e.g., carbon and other substances (Column 11, Lines 4-34), between the front and rear crystals (Figure 1a);
- wherein the method includes a step of cutting the front and rear crystals from the same ingot of material (Column 7, Lines 65-68, and Column 8, Lines 1-4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 93 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent to Neale et al. (US 5,524,133) in view of Moisan.

With respect to Claims 93 and 96, Neale et al. teaches a material discrimination detector for use in an X-ray discrimination system for x-ray inspection using high energy X-rays (Abstract), including:

- separate front (172) and rear scintillation (186) crystals;
- a low-z converter (176) between the front and rear crystals (Figure 15);
- wherein the front and rear crystals are made of the same material of cesium [sic] iodide (Column 8, Lines 7-20).

Neale et al. do not specifically teach cutting said crystals from the same *ingot* of said cesium iodide material.

Moisan teaches scintillation crystals for use in a material discrimination detector (Column 6, Lines 34-59), wherein the two crystals are cut from the same ingot of material (Column 7, Lines 65-68, and Column 8, Lines 1-4), to provide scintillators with the same or substantially the same physical and chemical properties (Column 8, Lines 11-17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to cut several lengths of crystal from a single ingot of the crystal material, as demonstrated by Moisan, in the apparatus of Neale et al., to more easily manufacture said crystals for use in a material discrimination system, and to provide a more accurate discrimination system, as suggested by Moisan (Column 3, Lines 56-63, and Column 5, Lines 63-67).

***Allowable Subject Matter***

Claims 67, 68, 73, 76, 79, 81, and 82 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

With respect to Claim 67, the prior art of record teaches many of the elements of the claimed invention, including a material discrimination system including: a high energy x-ray source; a first detector component in the form of a thin scintillation crystal for registering an amount of energy deposited by an x-ray that is essentially independent of the x-ray energy; a thicker one-piece downstream scintillation crystal; a low-z converter situated between the thin crystal and the thicker crystal to stop electrons

produced by x-ray interactions downstream of the thin crystal from being significantly backscattered into the thin crystal and prevent electrons leaving the thin crystal from returning and depositing more energy in the thin crystal; a plurality of read-out devices for detecting light energy emitted by the crystals and generating respective electrical output signals in response thereto; wherein a pair of read-out devices is provided to read out from opposite sides of the crystals; and wherein the output signal from one readout device on each side of the crystals is added to the output signal to reduce any left/right asymmetry in the output signals.

However, prior art does not teach or fairly suggest the system wherein the pairs of read-out devices on the thicker crystal read out at different respective depths in the beam direction, in the manner required by Claim 67.

Claims 68, 73, 76, 79, 81, and 82 would be allowed by virtue of their dependency.

### ***Response to Arguments***

The indicated allowability of claims 93 and 96 is withdrawn in view of the newly discovered reference(s) to Moisan. Rejections based on the newly cited reference(s) are discussed above.

Applicant's arguments filed 31 March 2008 have been fully considered but they are not persuasive. For the above stated reasons, new Claim 112 has been withdrawn from consideration as being directed towards a non-elected invention.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Documents to: Humphrey (US 3,539,806) teaches a material discrimination system using multiple scintillators of varied sizes with MgO layers at their interfaces; Carrell (US 3,399,302), Drukier (US 4,618,773), and Mackawa et al. teach dual scintillator material discrimination systems including filters/converters; Wong (US 4,677,299), and Rozsa (US 6,534,771 B1) teach dual scintillator material discrimination systems with converters and scintillators of varied thickness; and Yun et al. (US 7,286,640 B2) teach a material discrimination system with 2 CsI scintillators, one thin front crystal and one thick rear crystal, with a converter between the scintillators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANASTASIA MIDKIFF whose telephone number is (571)272-5053. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.



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/A. M./  
Examiner, Art Unit 2882  
04/09/08

/Edward J Glick/  
Supervisory Patent Examiner, Art Unit 2882